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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,466	06/22/2006	Klaus Bohmhammel	292190US0PCT	3331

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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NGUYEN, COLETTE B

ART UNIT	PAPER NUMBER
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1793

NOTIFICATION DATE	DELIVERY MODE
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12/18/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/584,466	<b>Applicant(s)</b> BOHMHAMMEL ET AL.	
	<b>Examiner</b> COLETTE NGUYEN	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/22/06 and 9/29/08</u> .                                     | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roewer et al. (US5,716,590), in view of Corbin et al.(US5,600,040).

Roewer(590) discloses a process for catalytic hydrodehalogenation of a halogen-containing compound of carbon or silicon such as silicon tetrachloride to trichlorosilane in the presence of hydrogen with a catalyst system comprising of silicon and at least one transition metal. The process is carried out at 100-1000C. He does not disclose a catalyst system comprising elements of group 2 of the periodic table.

Corbin et al. (040) discloses a process to separate HFC-134 isomers ( HFC-134 or HFC-134a by hydrodehalogenation), a refrigeration fluid, using selective sorbents such as carbons and zeolites with alkaline earth metals selected from the group consisting of calcium, strontium, barium and combinations thereof.(Corbin, Col.3, ln 47-52). The activated carbon, a supported catalyst, has a total content of 0.1 -10 wt% of alkali and alkaline earth metals (Corbin, col.3, ln47-52).

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teaching of Corbin of a catalyst with alkaline earth metal such as Barium, Strontium, Magnesium, Calcium (the elements of the Group II in the periodic table), with the disclosures of Roewer of preparing trichlorosilan by hydrodehalogenation of silicon tetrachloride as both processes involve hydrodehalogenation process and the catalyst system of Corbin shows better selectivity and conversion therefore quality improvement in purification can be achieved. With respect to the encompassing and overlapping ranges discussed herewith, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time of the invention to select the portion of the prior art range which is within the range of the applicant claims because it has been held prima facie case of obviousness to select

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a value in a known range by optimization for the results. In *re Boesch*, 205 USPQ 215, in *re Malagari*, 182 USPQ 549. For the pressure, space velocity for the reaction, it would have been obvious to one of ordinary skill in the art to optimize these conditions through routine experimentation in order to obtain the best results

5. Regarding claim 1. Roewer in view of Corbin disclose a process for preparing trichlorosilan by catalytic hydrodehalogenation of silicon tetrachloride in the presence of hydrogen, in which an alkaline earth metal such as Barium, Strontium, Magnesium and Calcium and their mixture thereof are used as catalyst at a temperature in the range from 100-1000C (Roewer, Col 1, ln 58). The teachings encompass the instant claim

6. Regarding claim 3 and 4. Roewer in view of Corbin disclose a process as claim 1 wherein a supported catalyst is used (Col 3, ln 57 and Col4. ln 5, "activated carbons" and " zeolites").

7. Regarding claim 5. Corbin discloses supported catalyst content, calculated as element of 0.1 to 10% by weight (Col3, ln 46, "typically *the activated carbon used will have a total content of from about 0.1 to 10 weight percent of alkali and alkaline earth metals*").

8. Regarding claim 6. Roewer teaches a 1 to 20 molecules of H<sub>2</sub> are used per halogen atom. The teaching encompasses the instant claim

9. Regarding claim 7. Corbin discloses the reaction can be carried out in a fixed – bed reactor, a fluidized-reactor or a moving-bed reactor. (Corbin, Col 5, ln. 28-35)

10. Regarding claim 8. Roewer in view of Corbin disclose a process as claimed in claim 1 wherein the catalytic reaction is carried out at a temperature in the range from

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100- 1000C and at ambient pressure. (Roewer, Col 2, ln 57-62, and Col 3, ln46-58) and (Corbin, col 2, ln 10). The range overlaps the claimed range.

11. Regarding claim 9. Roewer in view of Corbin disclose a process as claim 1 wherein Roewer discloses that “ *the optimum temperature thereby naturally varies for individual compounds, and also depends on process parameters, e.g. on the space velocity with respect to the catalyst*” (Col 3, ln47-52). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed ranges through process optimization, since it is has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See in *re Boesch*, 205 USPQ 215.

12. Regarding claim10. Roewer in view of Corbin disclose a process as claim 1 wherein trichlorosilane is isolated from the product mixture or the product mixture is used further directly.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to COLETTE NGUYEN whose telephone number is (571)270-5831. The examiner can normally be reached on Monday-Thursday, 10:00-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curt Mayes can be reached on (571)-272-1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/COLETTE NGUYEN/  
Examiner, Art Unit 1793

CN  
December 12, 2008

/Melvin Curtis Mayes/  
Supervisory Patent Examiner, Art Unit 1793